AMENDMENT TO THE CLAIMS

The following is a detailed listing of all claims that are, or were, in the Application.

1. (Previously presented) A converter circuit, comprising:

an AC-to-DC converter, comprising a plurality of first power devices;

a resonant DC link, comprising only one power transistor and a first and a second DC link line;

a DC-to-AC converter, comprising a plurality of second power devices; and

DC link lines, coupling the AC-to-DC converter, the resonant link, and the DC-to-AC converter, wherein

a first terminal of the power transistor is connected to the first DC link lines and a second terminal of the power transistor is connected to the second DC link line; and

the resonant DC link is operable to clamp an operating voltage of the converter.

2. (Original) The converter of Claim 1, wherein the plurality of first power devices comprise:

first power devices selected from the group of MOS-FETs and npn bipolar transistors.

3. (Original) The converter of Claim 2, wherein the plurality of first power devices comprise:

first power diodes, coupled across corresponding first power transistors.

4. (Original) The converter of Claim 3, wherein the first power diodes being coupled across the first power transistors comprises a first power diode being coupled between a source and a drain of a MOS-FET first power transistor.

5. (Original) The converter of Claim 3, wherein the first power devices are coupled pair-wise in series to form a plurality of first arms.

6. (Original) The converter of Claim 5, wherein the AC-to-DC converter comprises at least one of three first arms and simple rectifiers, generating an essentially DC voltage.

7. (Original) The converter of Claim 5, further comprising:

first terminals coupled to corresponding first arms, the first terminals operable to receive AC power from an AC power source.

8. (Original) The converter of Claim 1, wherein the plurality of second power devices comprise:

second power transistors selected from the group of MOS-FETs and npn bipolar transistors.

9. (Original) The converter of Claim 8, wherein the plurality of second power devices comprise:

second power diodes, coupled across corresponding second power transistors.

10. (Original) The converter of Claim 9, wherein the second power diodes being coupled across the second power transistors comprises a second power diode being coupled between a source and a drain of a second MOS-FET power transistor.

11. (Original) The converter of Claim 9, wherein the second power transistors are coupled pair-wise in series to form a plurality of second arms.

12. (Original) The converter of Claim 11, wherein the DC-to-AC converter comprises three second arms.

13. (Original) The converter of Claim 11, further comprising:

second terminals coupled to corresponding second arms, the second terminals operable to provide AC power to a load.

14. (Original) The converter of Claim 1, wherein the DC-to-AC converter comprises:

a resonant capacitor;

an equivalent power diode; and

an equivalent switch; wherein

the resonant capacitor, the equivalent power diode, and the equivalent switch are coupled:

between the DC link lines; and

parallel with each other.

15. (Previously presented) The converter of Claim 1, wherein the power transistor of the resonant DC link comprises:

an auxiliary power transistor, selected from the group of MOS-FETs and npn bipolar transistors.

16. (Previously presented) The converter of Claim 15, wherein the power transistor of the resonant DC link comprises:

an auxiliary power diode, coupled across the auxiliary power transistor.

17. (Previously presented) The converter of Claim 1, wherein:

the power transistor is not coupled in series with any one of the DC link lines.

18. (Previously presented) The converter of Claim 16, wherein the resonant DC link comprises:

a first capacitor, coupled in series with the power transistor;

a resonant capacitor, comprising parasitic capacitors of the power devices;

an inductance, coupled in parallel with the power transistor and the first capacitor, the inductance forming a resonant circuit with the resonant capacitor; and

a second capacitor, coupled in series with the resonant circuit.

19. (Original) The converter of Claim 18, outputting an output voltage between the DC link lines, wherein the output voltage is essentially clamped to the sum of the voltage across the first capacitor and the voltage across the second capacitor.

20. (Previously presented) A method of operating a converter circuit, the converter circuit comprising an AC-to-DC converter, a resonant DC link, comprising only one power transistor and a first and a second DC link line, a DC-to-AC converter, and DC link lines, coupling the AC-to-DC converter, the resonant link, and the DC-to-AC converter, wherein a first terminal of the power transistor is coupled to the first DC link line and a

second terminal of the power transistor is connected to the second DC link line, the method comprising:

switching the power transistor with an essentially zero voltage switching condition.

21. (Previously presented) A converter circuit, comprising:

an AC-to-DC converter, comprising a plurality of first power devices;

a resonant DC circuit, comprising only one power transistor;

a DC-to-AC converter, comprising a plurality of second power devices; and

a positive DC link and a negative DC link, coupling the AC-to-DC converter, the resonant DC circuit, and the DC-to-AC converter, wherein

the power transistor is coupled between the positive DC link and the negative DC link; and

the resonant DC circuit is operable to clamp a voltage between the positive and the negative DC links.

22. (Previously presented) The converter of claim 21, wherein

the power transistor is not coupled in series with any one of the positive DC link and the negative DC link.

23. (Previously presented) A converter circuit, comprising:

an AC-to-DC converter, comprising a plurality of first power devices;

a resonant DC link, comprising only one power transistor and a first and a second DC link line;

a DC-to-AC converter, comprising a plurality of second power devices; and

DC link lines, coupling the AC-to-DC converter, the resonant link, and the DC-to-AC converter, wherein

a first terminal of the power transistor is coupled to the first DC link line and a second terminal of the power transistor is connected to the second DC link line; and

the first and secondary power devices have voltage ratings limited by a clamping of a resonant DC link voltage.

24. (Previously presented) A converter circuit, comprising:

an AC-to-DC converter, comprising a plurality of first power devices;

a resonant DC link, comprising only one power transistor and a first and a second DC link line;

a DC-to-AC converter, comprising a plurality of second power devices; and

DC link lines, coupling the AC-to-DC converter, the resonant link, and the DC-to-AC converter, wherein

a first terminal of the power transistor is connected to the first DC link line and a second terminal of the power transistor is connected to the second DC link line; and

the power transistor is switched on for less than 10 percent of the operating cycle.

25. (Previously presented) The converter circuit of claim 1, wherein

the only switching device in the resonant DC link is the power transistor.

26. (Previously presented) A converter circuit, comprising:

an AC-to-DC converter, comprising a plurality of first power devices;

a resonant DC link, comprising only one power switching device and a first and a second DC link line;

a DC-to-AC converter, comprising a plurality of second power devices; and

DC link lines, coupling the AC-to-DC converter, the resonant link, and the DC-to-AC converter, wherein

a first terminal of the power switching device is connected to the first DC link lines and a second terminal of the power switching device is connected to the second DC link line.

27. (Previously presented) The converter circuit of claim 26, wherein

the resonant DC link is operable to clamp an operating voltage of the converter.